

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. JM34006DIV		Priority SERIAL NO. 09744224	
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)					APPLICANT Janine K. Kardokus et al.		Priority FILING DATE November 15, 2000	
					Priority GROUP 1742			
U.S. PATENT DOCUMENTS								
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate		
SK	AA	3,963,934	06/76	Ormrod				
	AB	4,132,614	01/79	Cuomo et al.				
	AC	4,149,907	04/79	Wronski et al.				
	AD	4,159,909	07/79	Wilson				
	AE	4,198,283	04/80	Class et al.				
	AF	4,209,375	06/80	Gates et al.				
	AG	4,385,979	05/83	Pierce et al.				
	AH	4,545,882	10/85	McKelvey				
	AI	4,629,859	12/86	Reddy				
	AJ	4,814,053	03/89	Shimokawato				
	AK	5,171,411	12/92	Hillendahl et al.				
SK	AL	5,215,639	06/93	Boys				
FOREIGN PATENT DOCUMENTS								
	Document Number	Date	Country	Class	Subclass	Translation		
						Yes	No	
SK	AM 0335383 A2	10/89	EPO				✓	
	AN 0626722 A1	11/94	EPO				✓	
	AO 0882813 A1	12/98	EPO				✓	
	AP 01096374	04/89	Japan				✓	
SK	AQ 01096376	10/87	Japan				✓	
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
SK	AR	Physical Metallurgy Principles 2d ed., 1973, p. 298.						
SK	AS	Phillips, V.A. et al., "The Effect of Certain Solute Elements on the Recrystallization of Copper", Journ. of Institute of Metals, Vol. 81, 1952-53, pp. 185-208. (No Date)						
SK	AT	Brizzolara et al., "Low Energy Sputtering of Eutectic Ag/Cu Alloys", Nuclear Instruments and Methods in Physics Research B26, 12/1987, pp. 528-531.						
EXAMINER S. Kastler				DATE CONSIDERED 7-04				
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV		priority SERIAL NO. 89/234,314	
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.			
				priority FILING DATE November 15, 2000		priority GROUP 1742	
U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
SIC	AA	5,242,566	09/93	Parker			
	AB	5,268,236	12/93	Dumont et al.			
	AC	5,282,943	02/94	Lannutti et al.			
	AD	5,282,946	02/94	Kinoshita et al.			
	AE	5,336,386	08/94	Marx et al.			
	AF	5,397,050	03/95	Mueller			
	AG	5,490,914	02/96	Hurwitt et al.			
	AH	5,589,040	12/96	Nishimura			
	AI	5,674,367	10/97	Hunt et al.			
	AJ	5,772,858	06/98	Tepman.			
ISC	AK	5,833,823	11/98	Gruenfelder et al.			
	AL	5,846,389	12/98	Levine et al.			
FOREIGN PATENT DOCUMENTS							
	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
SK	AM	02301585	12/13/90	Japan			✓
	AN	05078195	3/30/93	Japan			✓
	AO	06081138	01/03/94	Japan			✓
	AP	09249967	09/22/97	Japan			✓
SK	AQ	10287939	10/27/98	Japan			✓
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)							
SK	AR	Cabral, C. et al., "Preparation of Low Resistivity Cu-I at. %Cr Thin Films by Magnetron Sputtering", J. Vac. Sci. Technol. A 10(4), Jul/Aug 1992, pp. 1706-1711.					
SK	AS	Foster, N., "Composition and Structure of Sputtered Films of Ferroelectric Niobates", J. of Vac. Sci. and Tech., Vol. 8, No. 1, (1971), pp. 251-255.					
SK	AT	Haertling, G., "Hot-Pressed Ferroelectric Lead Zirconate Titanate Ceramics for Electro-Optical Applications", Ceramic Bulletin, Vol. 49, No. 6 (1970), pp. 564-567.					
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LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.				
				priority FILING DATE November 15, 2000	priority GROUP 1742			
U.S. PATENT DOCUMENTS								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
SK	AA	6,010,583	01/00	Annarapu et al.				
	AB	6,028,003	02/00	Frisa et al.				
	AC	6,039,855	03/00	Wollenberg				
	AD	6,042,752	03/00	Mitsui				
	AE	6,068,742	05/00	Daxinger et al.				
	AF	6,086,735	07/00	Gilman et al.				
	AG	6,117,281	09/00	Novbakhian.				
	AH	6,139,701	10/00	Pavate et al.				
	AI	5,693,203	12/97	Ohhashi et al.				
	AJ	6,113,761	09/00	Kardokus et al.				
	AK	3,666,666	05/72	Haertling				
SK	AL	3,923,675	12/75	Mazdiyasi et al.				
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
SK	AM	61084389	4/28/86	Japan				✓
	AN	61113740	5/31/86	Japan				✓
	AO	62127438	6/9/87	Japan				✓
	AP	63064211	3/22/88	Japan				✓
SK	AQ	63118033	5/23/88	Japan				✓
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
SK	AR	Harper, J. et al., "Materials Issues in Copper Interconnections", MRS Bulletin, Aug. 1994, pp. 23-29.						
SK	AS	Igarashi, Y. et al., "Electromigration Properties of Copper-Zirconium Alloy Interconnects", J. Vac. Sci. Technol. B 16(5), Sep/Oct. 1998, pp. 2745-2750.						
SK	AT	Dierckxsens et al., "Effect of Trace Elements On the Recrystallization Behavior of High Purity Oxygen-Containing Copper", Erzmetall, (1975), 28(11), 496-500 (abstract only)						
EXAMINER S. Kastler				DATE CONSIDERED 7-04				
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006DIV	priority SERIAL NO. 08/714,714		
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Janine K. Kardokus et al.			
				priority FILING DATE November 15, 2000	priority GROUP 1742		
U.S. PATENT DOCUMENTS							
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
SK	AA	4,676,827	06/87	Hosoda et al.			
	AB	4,814,053	03/89	Shimokawato			
	AC	4,986,856	01/91	Tanigawa et al.			
	AD	5,023,698	06/91	Kobayashi et al.			
	AE	5,066,617	11/91	Tanemoto et al.			
	AF	5,077,005	12/91	Kato			
	AG	5,314,651	05/94	Kulwicki			
	AH	5,719,447	02/98	Gardner			
	AJ	5,833,820	11/98	Dubin			
	AJ	5,895,562	04/99	Dubin			
	AK	5,972,192	10/99	Dubin et al.			
SK	AL	6,093,966	07/00	Venkatraman et al.			
FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation Yes No
SK	AM	63235442	9/30/88				
SK	AN	363033174	02/12/88				
SK	AO	00/73531 A2	12/7/00				
	AP						
	AQ						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
SK	AR			Massalski, T., "Binary Alloy Phase Diagrams", Vol. 1, American Society for Metals, Ohio 1986, pp. 18-19, 928-929, 936-937, 964-965.			
SK	AS			West, C., "International Critical Tables of Numerical Data, Physics, Chemistry and Technology", National Research Council of the USA, McGraw-Hill Book Co., Inc. 1933, 6 pages.			
SK	AT			Pierson, K. et al., "Total Sputtering Yield of Ag/Cu Alloys for Low Energy Argon Ions", Nucl. Instrum. Methods Phys. Res., Sect. B (1996), Vol. 108(3), pp. 290-299.			
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				priority FILING DATE November 15, 2000	priority GROUP 1742	
U.S. PATENT DOCUMENTS						
*Examiner Initial		Document Number	Date	Name	Class Subclass	Filing Date If Appropriate
SK	AA	6,117,281	09/00	Novbakhtian		
	AB	6,117,781	09/00	Lukanc et al.		
	AC	6,117,782	09/00	Lukanc et al.		
	AD	6,121,150	09/00	Avanzino et al.		
	AE	6,121,685	09/00	Gardner		
	AF	6,162,726	12/00	Dubin		
SK	AG	6,197,433	03/01	Hatano		
	AH					
	AI					
	AJ					
	AK					
	AL					
FOREIGN PATENT DOCUMENTS						
		Document Number	Date	Country	Class Subclass	Translation Yes No
	AM					
	AN					
	AO					
	AP					
	AQ					
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)						
SK	AR		Rossmagel, S., "Direction and Preferential Sputtering-Based Physical Vapor Deposition", Thin Solid Films 263 (1995), pp. 1-12.			
SK	AS		Takewaki, T. et al., "Excellent Electro-Stress-Migration-Resistance Surface-Silicide Passivated Giant-Grain Cu-Mg Alloy Interconnect Technology for Giga Scale Integrations (GSI)", 1995 IEEE, pp. 10.5.1 - 10.5.4.			
	AT					
EXAMINER S. Kastler			DATE CONSIDERED 7-04			
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Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. JM34006D1V	SERIAL NO. 10/027,992			
<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 24px; font-weight: bold;">OIP</div> <div style="position: absolute; top: 10%; left: 10%; font-size: 12px;"> JAN 26 2001 PATENT & TRADEMARK OFFICE </div> </div>				LIST OF ART CITED BY APPLICANT (One several sheets if necessary)				
				APPLICANT Janine K. Kardokus et al.				
				FILING DATE December 19, 2001	GROUP 1742			
U.S. PATENT DOCUMENTS								
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate		
	AA							
	AB							
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	AG							
	AH							
	AI							
	AJ							
	AK							
	AL							
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AM	JP 62116743	05-1987	Japan (abstract)				✓
	AN							
	AO							
	AP							
	AQ							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR							
	AS							
	AT							
EXAMINER			DATE CONSIDERED					
S. Kastler			7-04					
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